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(54) Name of the invention:

Wall Surface Installation Tool

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(43) Showa 56 (1981) 12/8

(71) Patent Assignee: Taino Resarch LTD

JP 63-14756

[Note: Names, addresses, company names and brand names are translated in the most common manner. Japanese language does not have singular or plural words unless otherwise specified by a numeral prefix or a general form of plurality suffix.]

(54) Name of the Invention

Wall Surface Installation Tool

(57) Scope of the Claims

1. Wall surface installation tool characterized by the fact that it is a wall surface installation tool, which uses an adhesive agent, and it is formed from an installation tool main body, which has been provided with a heat curable (thermosetting) type adhesive agent, a container housing the heating source, which has been freely provided onto the installation tool body without gluing, and a heating source, which is housed in the inner part of the container housing the heating source.
2. Wall surface installation tool according to the above Claim 1 of the present invention, characterized by the fact that the above described heating source is a point flame type fuel.
3. Wall surface installation tool according to the above Claim 1 of the present invention, characterized by the fact that the above described heating source is a reaction type flameless fuel.

Detailed Explanation of the Invention

The present invention is an invention about a wall surface installation tool, which uses an adhesive agent. And in more details, the present invention is an invention about a wall surface installation tool, which uses a heat curable type adhesive agent.

In the past, the wall surface installation tools, which use an adhesive agent, have been used in many applications due to the ease of the installation. However, in the case of the wall surface installation tools, which have used pressure sensitive adhesive agent, the practical installation has been impossible when the resistance to the load application has been difficult, and

when the surface that is the subject of the adhesion has protrusions and indentations due to the mortar etc., multiporous materials, or when due to water at some locations water penetrates at the interface between the material that is subject to the adhesion and the adhesive agent, and an interruption of that interface occurs, and due to that it has not been possible to use that tool.

As a wall surface installation tool, which eliminates the above described drawbacks of the pressure sensitive adhesive agent, there is the wall surface installation tool which utilizes a rubber type, or an epoxy type, or a silicone type etc., adhesive agent. However, in the case of the tool using a rubber type adhesive agent, it is necessary that both the surface that is subject to the adhesion and the installation tool are coated with the adhesive agent, and in the case of the epoxy type and the silicone type etc., reactive type adhesive agents, and in the 2 solution case, time (labor) is required, and in the one solution case time at a high temperature required for the cure, is required, and neither of these is appropriate for general use.

The goal of the present invention is to eliminate the above described drawbacks according to the wall surface installation tools of the previous technology, and to suggest an adhesive agent type wall surface installation tool, which can be simply and stably used in the general construction application.

After that, the present invention will be explained in details based on practical implementation examples.

[Practical Example 1]

Figure 1 represents an explanation diagram of a wall surface installation tool, which is one practical implementation example of the present invention.

In the above diagram, on the back surface of the main body 1 of the installation tool, which has the installation tool 8, that has a protruded shape and that is manufactured from stainless steel, the 1 component heat curable type adhesive agent 7 (TSE322, manufactured by Toshiba Silicone Company) is provided so that it has an almost flat type surface, and in the inner part of the container 5, which houses the heating source, and which is

freely fit and combined with the main body 1, approximately 3 grams of a pocket heater fuel 3 is supplied and provided to the installation tool 8.

The container 5, which houses the heating source, is formed for example, from gypsum, etc., heat resistant type heat insulating material, and it is provided with the air opening 4.

This wall surface installation tool is temporarily adhered to the tile surface, as the adhesive agent 7 comes in contact with the tile surface, and after that a point flame is supplied onto the pocket heat fuel 3, and when that is done, the pocket heat fuel burns for approximately 10 minutes and then it is completed, and after 20 minutes, the adhesive agent 7 is completely cured.

After the curing of the adhesive agent, the container housing the heating source is removed together with the burning fuel, and when a weight of 3 kg is applied onto the installation tool 8, it is seen that the installation tool 8 is completely adhered onto the tile surface and that also its water resistant properties are sufficient.

Also, in the case of this wall surface installation tool, when the container housing the heating source is removed and the pocket heating fuel 3 has been burned, it is seen that the adhesive agent 7 has been completely cured by the 3 grams of the pocket heating fuel.

[Practical Example 2]

Figure 3 represents a side sectional view diagram of another practical example of the present invention, and Figure 4 represents its horizontal sectional view diagram.

In the case of the wall surface installation tool, which is shown in both of these diagrams, on the back surface of the installation tool main body 33, which has a hook shaped protrusion at its lower end, the heat curable type adhesive agent 35 (Ultradine 5111, manufactured by Shikoku Kasei Industries) is provided, and inside the heat resistant container 32, which houses the heating source, and which is provided on the front surface, as a reaction type flameless burning material, the iron monoxide powder 40 dispersed into steel wool is housed, and formed, and the air opening 30, which has been provided on the back surface of the container 32, is covered by the cover sheet 31.

Also, as it is shown according to the presented in Figure 4, the adhesive agent 35 is encircled by the putty 36, that is manufactured from paper glue, so that it does not start to flow at the time when it is heated, and the heating source housing container 32 becomes free and is not attached to the main body 33.

This wall surface installation tool is temporarily adhered onto the wall surface by the putty 36, and when the cover sheet 31 is removed, the ferrous oxide powder is oxidized and generates heat, and the heat curable agent is cured. The adhesive agent is cured within approximately 1 hour, and when tensile stress experiments were conducted, it showed 5 kg and higher resistance properties, and especially, in this state, even when it was exposed to 40°C water shower environment, for a period of 10 days, it stayed the same and there was no change observed.

The term reaction type flameless fuel material according to the present invention, has the meaning of material generating heat through chemical reaction, excluding the point flame type fuel material, and besides the ferrous oxide, there are also the different types of well known methods using the dissolution reaction of sodium hydroxide in water, or neutralization reactions, etc.

Also, as the point flame type fuel materials according to the present invention, these are fuels, that generate a flame by a match, lighter, etc., point flame source, and they can be a solid phase, liquid phase or gas phase materials.

As the heating source according to the present invention, besides the above described fuels, it is also possible to use heat generated by the resistance of an electrical battery, as shown according to Figure 2.

As it has been explained here above, the wall surface installation tool according to the present invention uses a heat curable adhesive agent, and because of that its installation strength is much larger than that in the case of the wall surface installation tool using a pressure sensitive adhesive agent type.

Also, the heating source that is used for the curing of the adhesive agent is housed inside a container, and because of that the heating effect is high and also stable.

Especially, in the case of the wall surface installation tool according to the present invention, the container housing the heating source is provided freely on the main body of the installation tool, without being adhered to it, and because of that its removal is easy, and at the time of the use of the installation tool also there are no cases where the heating source container becomes a hindrance, and the present invention is an invention which achieves its goal of suggesting a wall surface installation tool, which satisfies its goals.

Brief Explanation of the Figures

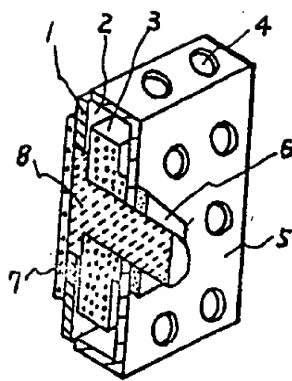
Figure 1 is a diagram explaining one practical implementation example according to the present invention. Figure 2 is a reference diagram in order to explain the heating source according to the present invention. Figure 3 is a side view sectional diagram of another practical implementation example according to the present invention. Figure 4 is a horizontal view sectional diagram of Figure 3.

1, 10, 33.....main body, 8, 18.....wall surface installation tool, 7, 17, 35.....adhesive agent, 15, 39.....surface subject to the adhesion.

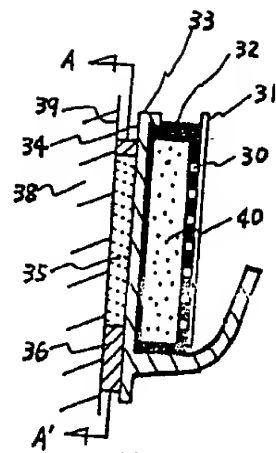
Patent Assignee: Taino Research LTD.

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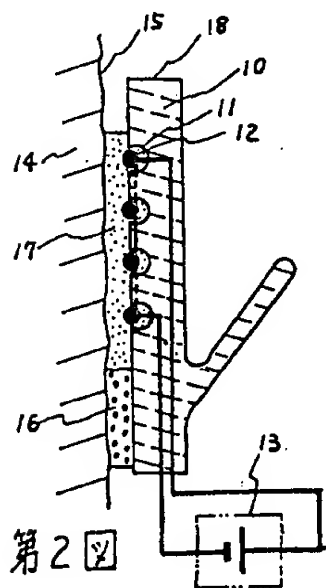
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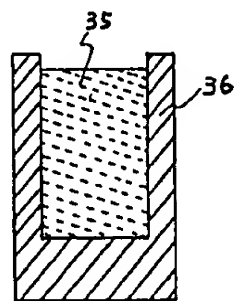
第1图



第3图



第2图



A-A' 断面

第4图

248-205.3

AU 355

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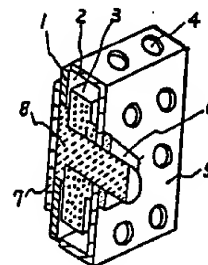
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FOREIGN
REFERENCE

88-117055/17 G03 OHNO-12.05.80
OHNO GIJUTSU KENKYU *J8 8014-756-B
12.05.80-IP-062670 (01.04.88) A47g-29 C09i-07/02
Adhesive tool to mount article on wall - comprises main body having
thermosetting adhesive agent and heat source in case attached to
main body (J5 8.12.81)
C88-052743

G(3-B3)

Adhesive tool comprises a main body having a thermosetting
adhesive agent, a heat source case removably attached to the main
body and a heat source put in the case.
Used for hooking or hanging decorative articles etc. on walls of
houses. (J56159268-A) (Spp Dwg.No.0/4)



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⑮ 発明の名称 壁面取付具

⑯ 特 願 昭55-62670

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⑱ 出 願 昭55(1980)5月12日

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審 査 官 川 上 義 行

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㉒ 特許請求の範囲

1 接着剤を用いる壁面取付具において、加熱硬化型接着剤を設けた取付具本体、取付具本体に着脱自在に設けた加熱源収納容器、加熱源収納容器の内部に収納した加熱源より成ることを特徴とした壁面取付具。

2 前記加熱源が点火型燃料である特許請求の範囲第1項記載の壁面取付具。

3 前記加熱源が反応型無炎燃料である特許請求の範囲第1項記載の壁面取付具。

㉓ 発明の詳細な説明

本発明は接着剤を用いる壁面取付具に関するものであり、更に詳しくは、熱硬化型接着剤を用いた壁面取付具に関するものである。

従来、接着剤を用いた壁面取付具は取付けが簡単なことから多くの用途に用いられていたが感圧接着剤を用いた壁面取付具は重荷重に耐え難い上にモルタル等の多孔質で凹凸のある被着面には実質的に取付けが不可能なことや水のかかる所では被着体と接着剤の界面に水が侵入して界面破壊を起こすので使用できなかった。

感圧接着剤の上述の欠点を除去する壁面取付具としてゴム系やエポキシ系、シリコン系等の接着剤を用いた壁面取付具であるが、ゴム系は被着面と取付具の両面に接着剤を塗布しなければならず、エポキシ系、シリコン系等の反応型接着剤は2液性の場合に手間がかかり、1液性の場合には硬化に要する温度が高い上に時間がかかって一般用としては不向きであった。

本発明の目的は、従来の壁面取付具における前述の欠点を除去して、簡便且つ安全に使用できる一般家庭向けの接着型壁面取付具を提供することである。

次に、実施例に基づいて本発明を具体的に説明する。

〔実施例 1〕

第1図は本発明の一実施例である壁面取付具の説明図である。

10 該図において突起状のステンレス製取付具8を有する取付具本体1の裏面には1成分加熱硬化型の接着剤7(東芝シリコーン(株)製TSE322)がほぼ平面状に設けられており、本体1に着脱自在に嵌合する加熱源収納容器5の内部には約3gの懐炉灰3が取付具8と係合して設けられている。

加熱源収納容器5は例えば石こうの様な耐熱性の断熱部材で形成されており、空気穴4が設けられている。

この壁面取付具をタイル面に接着剤7がタイル面と接触する様に仮着させた後、懐炉灰3に点火したところ懐炉灰3は約10分で燃焼を完了し、20分後に接着剤7は完全に硬化していた。

接着剤の硬化後燃焼灰と一緒に加熱源収納容器を取りはずし取付具8に3kgの重量物を吊下げたところ、取付具8はタイル面に完全に接着しており耐水性も充分であった。

また、この壁面取付具において加熱源収納容器を取りはずして懐炉灰3を燃焼させたところ3gの懐炉灰では接着剤7が充分硬化しなかった。

【実施例 2】

第3図は本発明の他の一実施例の側断面図であり、第4図はその平断面図である。

これ等の図に示す壁面取付具は下端に鈎状突起を有する取付具本体33の裏面に加熱硬化型接着剤35（四国化成工業㈱製ウルトラグイン5111）を設け、表面に設けた耐熱性の加熱源収納容器32内に反応型無炎燃焼としてガラスウールに分散させた酸化第一鉄粉40を収納して形成されており、容器32の背面に設けた空気穴30は遮蔽シート31で塞がれている。

また、接着剤35は加熱の際流れ出さない様に紙粘土製のパテ36によつて第4図に示す様に囲まれており、加熱源収納容器32は本体33と着脱自在になっている。

この壁面取付具をパテ36によつて壁面に仮着し、遮蔽シート31を取除くと酸化第一鉄粉が酸化発熱して硬化剤を硬化させる。接着剤は約1時間で硬化し、引張せん断試験を行つたところ5kg以上の耐性を示し、更にこの状態で40℃の水シャワーの雰囲気中に10日間放置しても何等異状が認められなかった。

本発明の反応型無炎燃料とは、点火型燃料を除く化学反応によつて発熱する物質を意味し、酸化第一鉄のほか水酸化ナトリウムと水の溶解反応や中和反応等種々の公知の方法がある。

また、本発明の点火型燃料とはマッチ、ライター等の点火源によつて着火する燃料でその形態は固体、液体あるいは気体がある。

本発明の加熱源としては前記燃料のほか、第2図に示した様な電池による抵抗発熱でもよい。

以上説明した様に本発明の壁面取付具は加熱硬化型の接着剤を使用しているので感圧接着型壁面取付具に比して取付強度が極めて大きい。

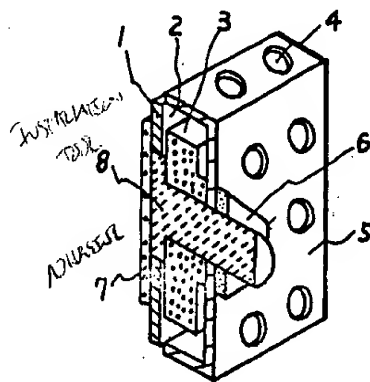
また接着剤硬化用の加熱源が容器中に収納されているので加熱効果が大きく且つ安全である。

更に本発明の壁面取付具は加熱源が収納容器と一緒に取付具本体に着脱自在に設けられているので取扱が簡便であり、取付具の使用時に加熱源容器が邪魔になることもなく、本発明はその目的をことごとく満足する壁面取付具を提供するものである。

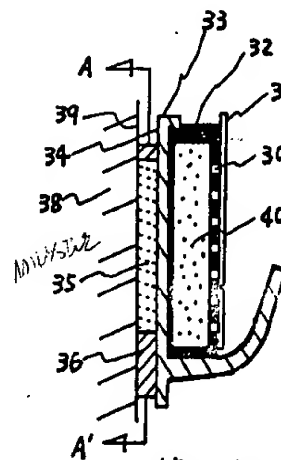
図面の簡単な説明

第1図は本発明の一実施例を説明する図であり、第2図は本発明の加熱源を説明するための参考図である。第3図は本発明の他の一実施例の側断面図であり、第4図は第3図の平断面図である。

1, 10, 33……本体、8, 18……壁面取付具、7, 17, 35……接着剤、15, 39……被着面。



第1図



第3図

